Skip 4/02

Work Order ID 65985

Tuesday, February 01, 2011 7:08:31 AM

Item ID: D3391-023 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** [signature] **Date:** 1-04-Y **Tooling:** **Date:** **Run Start**

QC: **Date:** **SPC (Y/N):** **Date:** **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	**Revision Nbr**								
D3391	Rev H								
100		0.00							
Skidtubes	Skidtubes	0.00							

Skidtubes

Memo

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

4-Open saddles and GHW holes to Ø0.375" exept for fwd saddle hole of detail "J"

5-Remove .030" from Fwd indexing Ridge as per Dwg D3391

6-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

7-Deburr

8-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,

9-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"

10-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391

BB 11/02/01

11-2-1

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Reference:

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:** **Run Start**

QC: **Date:** **SPC (Y/N):** **Date:** **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
	11-Open .375" holes to .438" ***do not open fwd saddle holes***		DP		11-2-1				
	12-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)		NA						
	13- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021								
	14- Transfer drill 2 wearplate holes into D3391-021 using DT8217, locating from two previously drilled holes, drill remaining wearplate holes into D3391-021.		NA						
	15- Locating from two fwd wearplate holes drilol remaining 6 wearplte holes in D3391-021 using DT8937		N/A						
	16- Open 2 fwd wearplate holes in D3391-023 to .250" dia.								
	17- counterbore two aft wearplate holes in D3391-021 as per dwg								
	18- Open 12 wearplate holes in D3391-021 to 0.297" dia.		NA						
	19-Deburr and blow out all chips from inside tube		DP		11-2-1				

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Item Name: Mid Tube Assembly

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Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

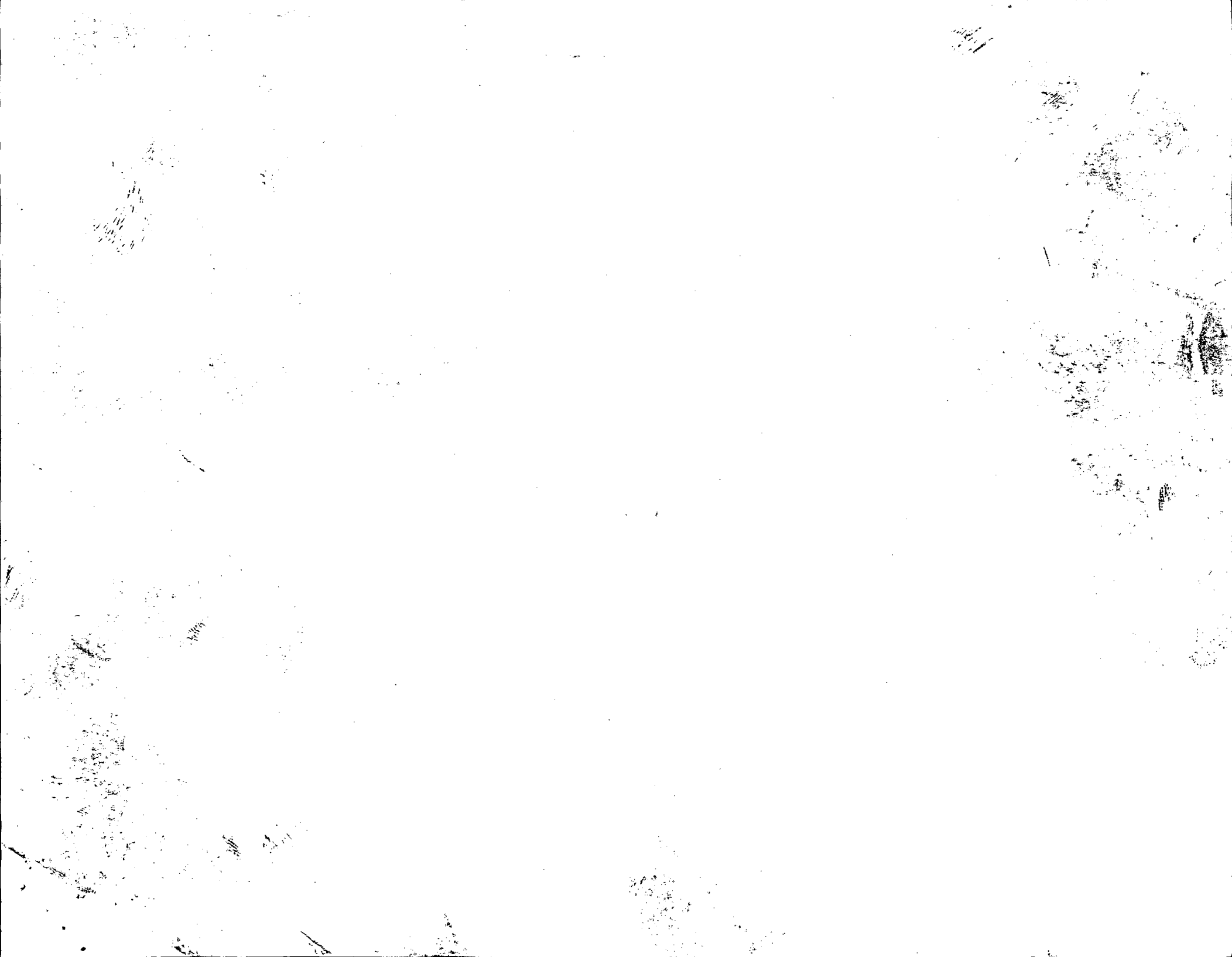
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00							
Quality Control									
120	Chemical Conversion Coat per QSI005 4.1	0.00							
HandFinish	**Memo**	0.00							
Hand Finishing									
130	QC3- Inspect Part Finish	0.00							
QC	**Memo**	0.00							
Quality Control									

8 11/02/01

1 0 11/02/01

11-2-1



Work Order ID 65985

Tuesday, February 01, 2011 7:08:31 AM

Item ID: D3391-023 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Skidtubes	0.00				1	0		BE 11/01/01
Skidtubes									
Skidtubes	**Memo**	0.00							
	1-Open float bag holes as per dwg 2-C'sink float bag holes as per dwg 3- Prepare tube for welding 4-Bond web in place as per Dwg D3391 & QSI 015. Adhere for 12 hours) A/R Sikaflex exp: 11-9-30 batch#: M11604								
150	QC5- Inspect part completeness to step on W/O	0.00				1	0		BE 11/02/02
QC	**Memo**	0.00							
Quality Control									
160	Skidtubes	0.00				1	0		BE 11/02/02
Skidtubes	**Memo**	0.00							
Skidtubes	1-Weld crossbolt spacer as per dwg D3391 & QSI 004 2-grind weld flush								

Work Order ID 65985

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Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC10- Inspect visual per QSI004- ground welds	0.00							
QC	**Memo**	0.00							
Quality Control									
180	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00							
Quality Control									
185	Pressure Wash per QSI005 4.3	0.00							
HandFinish	**Memo**	0.00							
Hand Finishing	AND REALODINE AS PER PAR09-043								

δ 11/02/12

δ 11/02/12

(4)

1 BK 11-02-3

Work Order ID 65985

Tuesday, February 01, 2011 7:08:31 AM

Item ID: D3391-023 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start **Stop**

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:**

QC: **Date:** **SPC (Y/N):** **Date:**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum M115951. **Memo** START TIME: 10:45 OVEN TEMPERATURE: 320° FINISH TIME: 11:15.	0.00 0.00				1		BR 11-02-3.	
200 QC Quality Control	QC3- Inspect Part Finish **Memo**	0.00 0.00				11/02/03	1	Ø	

Work Order ID 65985

Tuesday, February 01, 2011 7:08:31 AM

Item ID: D3391-023 **Accept** **Setup Start**

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Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210		0.00							
Skidtubes	Skidtubes								
Skidtubes	**Memo**	0.00							
	1- insert D3391-021 into D3391-23								
	2- insert T-pins into first and third fwd saddle holes								
	3- ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to 0.500" as per DSI 9364								
	4- remove T-pins and locate DT9415 from first and third crossbolt hole using T-pins and clekos								
	5- ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". Remove DT9415								
	6- deburr, re-alodine and blow out chips								
	7- press fit D3591-1 spacers using DT9416 starting from 0.500" side								
220	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00							
Quality Control									

N/A

PER CUST. REQUEST.

Work Order ID 65985

Tuesday, February 01, 2011 7:08:31 AM

Item ID: D3391-023 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:** **Run Start** **Stop**

QC: **Date:** **SPC (Y/N):** **Date:**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230 HandFinish Hand Finishing	HandFinishing	0.00	=) MH	11/02/03		1	0		
	Memo Install Inserts as per Dwg	0.00							
240 QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00	Entered		(+)				
	Memo	0.00							
250 Packaging Packaging	Identify as per dwg & Stock Location:_____	0.00							
	Memo	0.00							

11/2/03 SP

SP 03564-3 B66000

Dart Aerospace Ltd

W/O: 65985	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector
11/02/03	230	INSTALL => (1x) D3564-5 / BG50358 (wear plate) (1x) D3566-5 / BG41789 (GASKET)	JL	11/02/03	x1 x1		11/02/03
11/02/03	230	WITH =) (12x) AN3C-4A / M116075 (BOLTS) (12x) NAS1149C0332R / M116025 (WASHERS)	JL	11/02/03	x12 x12		11/02/03

Part No: D3391-023 **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 65985

Tuesday, February 01, 2011 7:08:31 AM

Item ID: D3391-023 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 2/4/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
260	QC21- Final Inspection - Work Order Release	0.00							11/02/04
QC	**Memo**	0.00							
Quality Control									

MF
11-02-04

Picklist Print

Tuesday, February 01, 2011 7:08:28 AM

2

Work Order ID: 65985

Parent Item: D3391-023

Parent Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Required Date:** 2/4/2011

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

IPP A 05.10.20 New Issue KJ/EC
IPP B 06.02.10 ECN773 dwg rev.D EC
IPP C 07.03.20 rev F dwg EC
IPP D 07.03.28 re-format EC
IPP E 07.10.31 ecn 1053P EC
IPP Rev:F ECN 1056 07-11-13 DD verified by: EC
IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC
IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC
IPP Rev: I 08-11-13 Removed steps per w/o, QC KJ verified by: ec IPP
Rev:J add in seq 140 expire date &b# sikaflex DD 10.02.17 verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2500-1-100		Manufactured	No			100	Each	116.0000	1	1			
Skidtube Extrusion													

Location	Loc Qty	Loc Code
LG	116	
37065	33	
50251	83	

D3391-021		Manufactured	No			100	Each	0.0000	1	1			
Fwd Tube Assembly													
D3389-1		Manufactured	No			140	Each	3.0000	1	1			
Web													

Location	Loc Qty	Loc Code
LG	3	
63343	1	
64877	2	

B65989

Picklist Print

Tuesday, February 01, 2011 7:08:28 AM

Work Order ID: 65985

Parent Item: D3391-023

Parent Item Name: Mid Tube Assembly

Start Date: 2/1/2011 **Required Date:** 2/4/2011

Start Qty: 1.00 **Required Qty:** 1.00

D3681-1	Manufactured	No		160	Each	51.0000	5	5

Spacer

Location	Loc Qty	Loc Code
LG	51	
56802	14	
57656	12	
63321	5	
64620	20	

D3591-1	Manufactured	No		210	Each	31.0000	2	2

Bushing

Location	Loc Qty	Loc Code
ST072	31	
47121	2	
57350	29	

ALS4-1032-130	Purchased	No		230	Each	807.0000	20	20

Insert

Location	Loc Qty	Loc Code
PKG11	480	
114723	480	
ST281	192	
116049	192	
ST282	96	
110511	10	
115911	86	
ST381	39	
114654	39	

SHOP COPY
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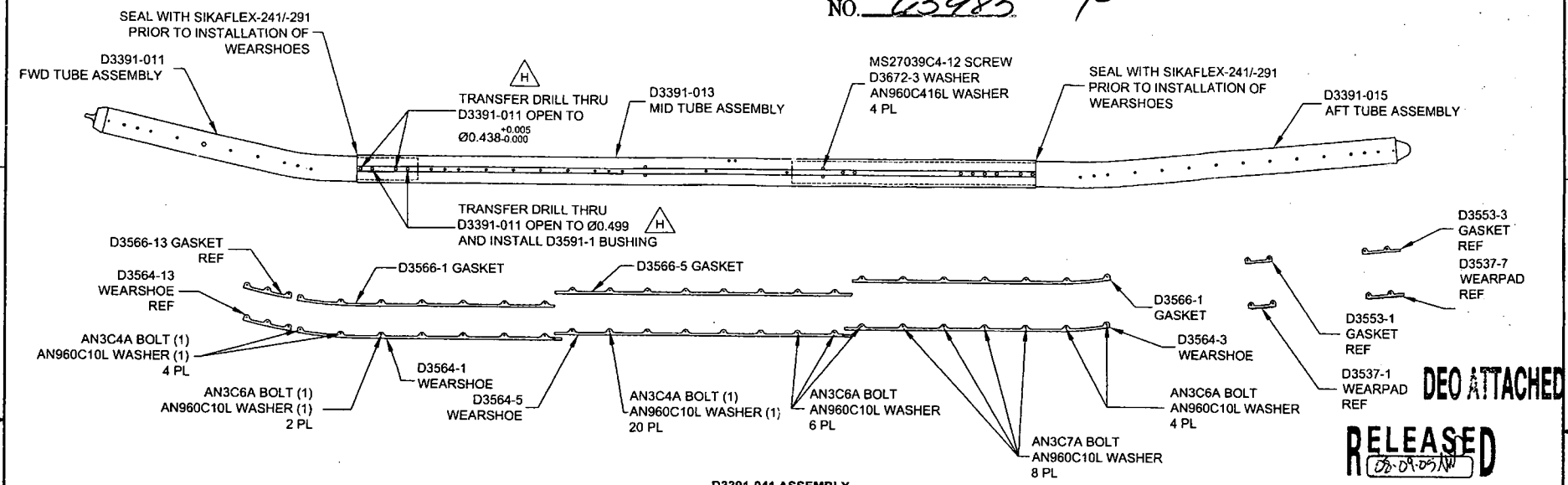
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 63985 pl 63985



DEO ATTACHED

RELEASED 08.09.05 NW

D3391-041 ASSEMBLY

D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY -041	PART NUMBER	DESCRIPTION
X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
2	D3591-1	BUSHING
4	D3672-3	WASHER
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C416L	WASHER

GENERAL NOTES

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

REV.	DESCRIPTION	BY	DATE
H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	AJS	PORT HADLOCK, WA
CHECKED		DRAWING NO. D3391 REV. H
MFG. APPR.		SHEET 1 OF 8
APPROVED		TITLE 412 FLOAT SKIDTUBE
DE APPR.		SCALE NTS
DATE	08.08.20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

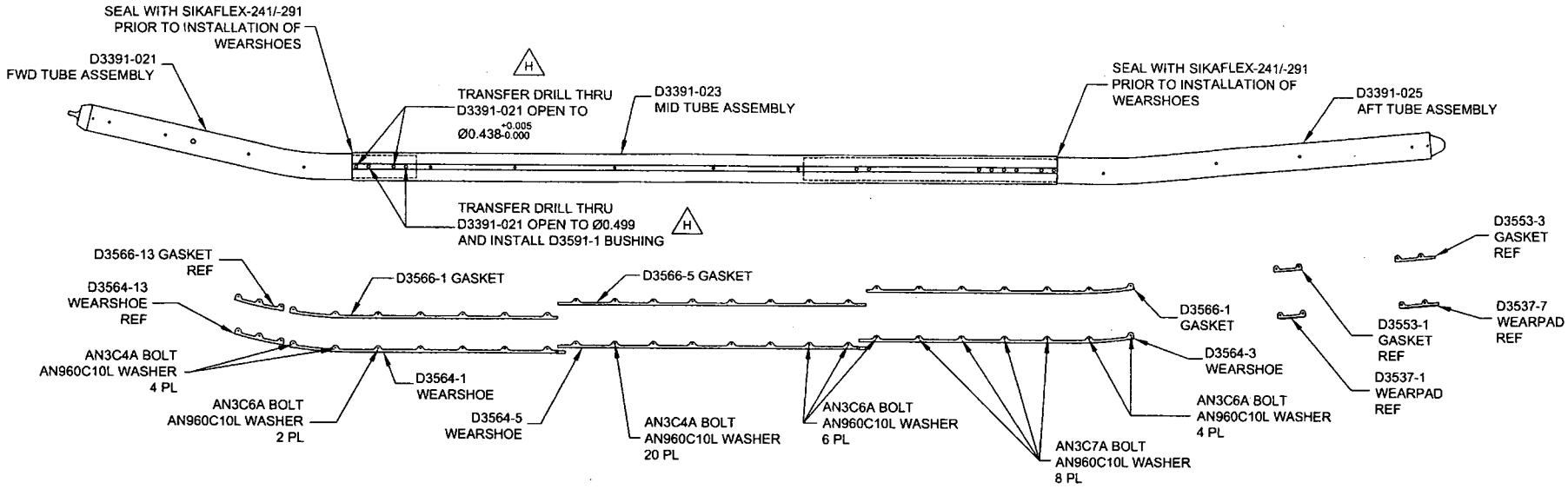
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

w/o 43985



D3391-043 ASSEMBLY

D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

	QTY -043	PART NUMBER	DESCRIPTION
	X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
	1	D3391-021	FWD TUBE ASSEMBLY
	1	D3391-023	MID TUBE ASSEMBLY
	1	D3391-025	AFT TUBE ASSEMBLY
	1	D3564-1	WEARSHOE
	1	D3564-3	WEARSHOE
	1	D3564-5	WEARSHOE
	2	D3566-1	GASKET
	1	D3566-5	GASKET
H	2	D3591-1	BUSHING
	24	AN3C4A	BOLT
	12	AN3C6A	BOLT
	8	AN3C7A	BOLT
	44	AN960C10L	WASHER

GENERAL NOTES

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

DEO ATTACHED

RELEASED 08-09-05

DESIGN	PH	**DART AEROSPACE USA, INC** PORT HADLOCK, WA
DRAWN	AJS	
CHECKED		DRAWING NO. D3391 REV. H
MFG. APPR.		SHEET 2 OF 8
APPROVED		TITLE 412 FLOAT SKIDTUBE SCALE NTS
DE APPR.		
DATE	08.08.20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

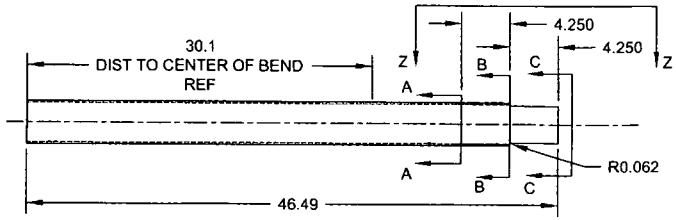
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

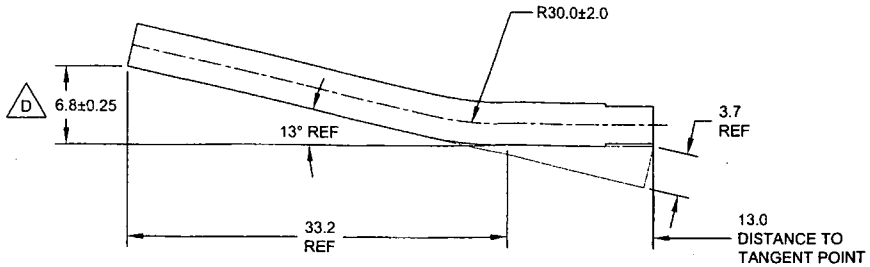
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

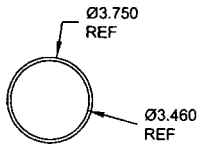
w/o G5985



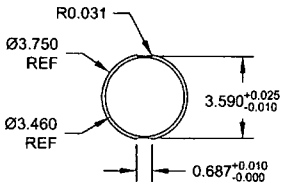
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



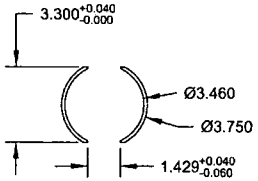
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



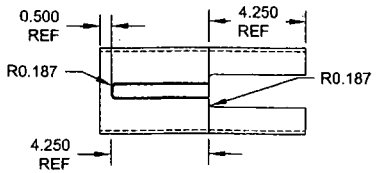
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X



VIEW Z-Z
SCALE 2X

DEO ATTACHED

RELEASED
08.19.05 NW

DESIGN	PH	**DART AEROSPACE USA, INC**	
DRAWN	AUS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 3 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

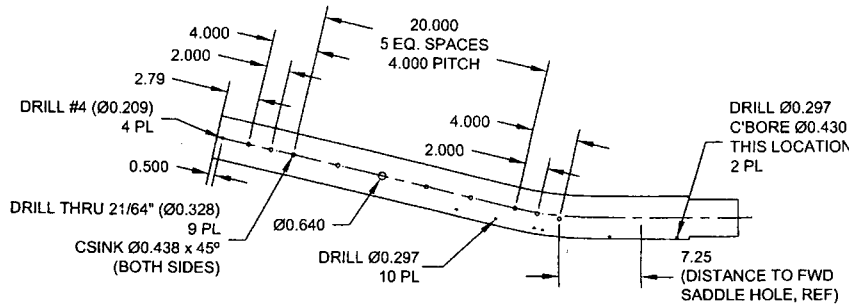
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

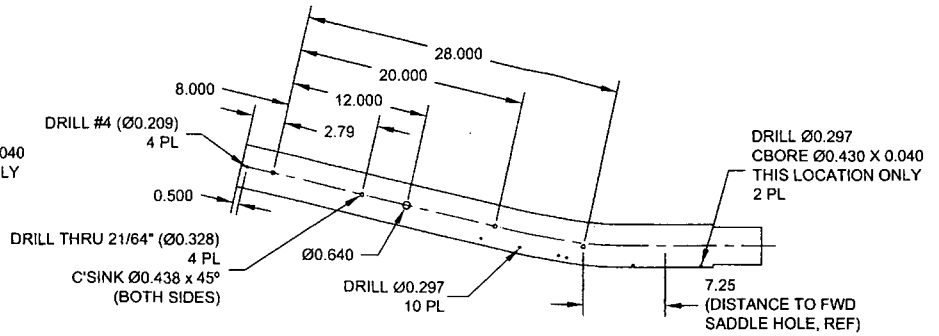
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

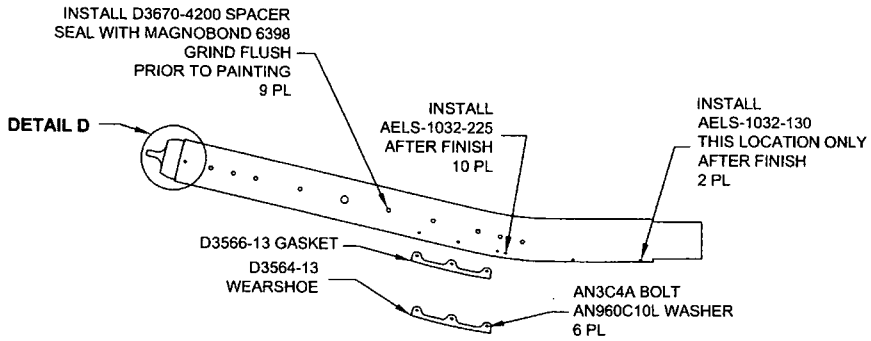
wb 45985



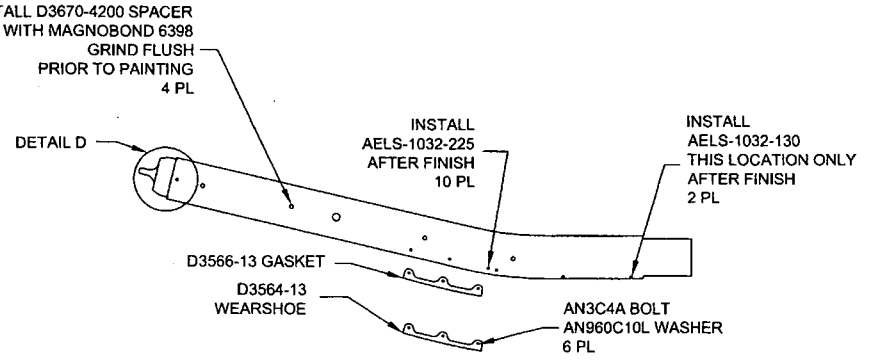
D3391-011 DRILLING DETAIL



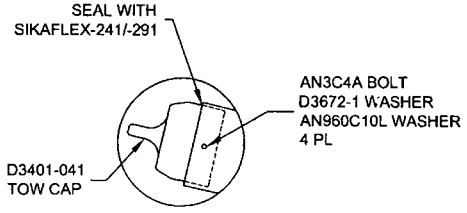
D3391-021 DRILLING DETAIL



D3391-011 ASSEMBLY DETAIL



D3391-021 ASSEMBLY DETAIL



DETAIL D
SCALE 2X

D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X		D3391-011	FWD TUBE ASSEMBLY
	X	D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
9	4	D3670-4200	SPACER
4	4	D3672-1	WASHER
10	10	AN3C4A	BOLT
10	10	AN960C10L	WASHER
2	2	AELS-1032-130	INSERT
10	10	AELS-1032-225	INSERT

DEO ATTACHED

RELEASED 08-09-20 MW

DESIGN	PH	**DART AEROSPACE USA, INC** PORT HADLOCK, WA
DRAWN	AJS	
CHECKED		DRAWING NO. D3391 — REV. H — SHEET 4 OF 8
MFG. APPR.		
APPROVED		TITLE: 412 FLOAT SKIDTUBE — SCALE: NTS
DE APPR.		
DATE	08.08.20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

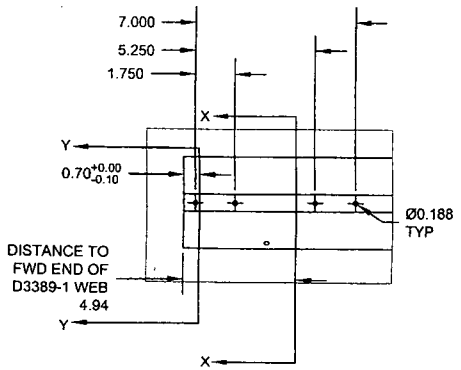
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

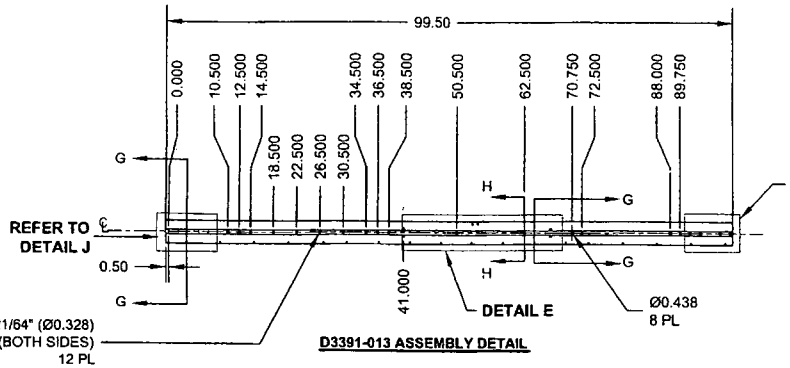
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

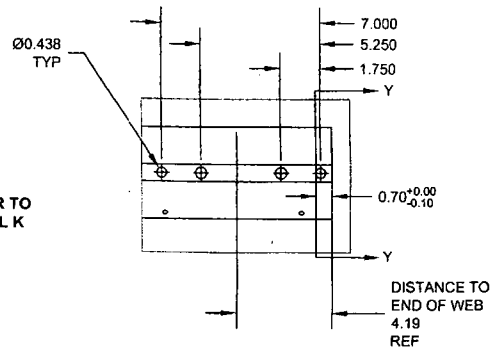
w/o 65985



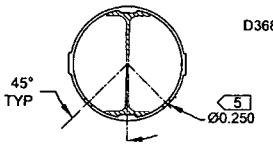
DETAIL J
SCALE 4X



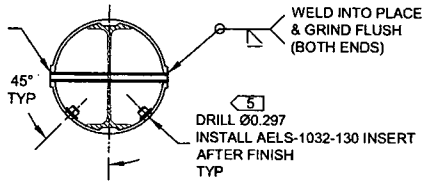
D3391-013 ASSEMBLY DETAIL



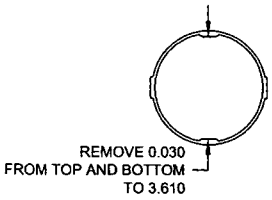
DETAIL K
SCALE 4X



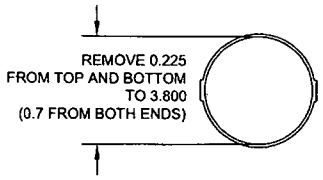
SECTION G-G
SCALE 5X



SECTION H-H 12 PL
SCALE 5X



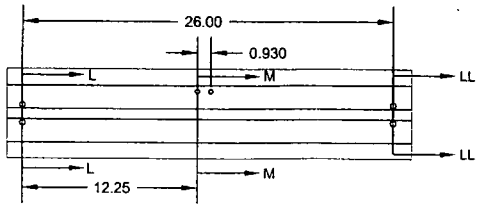
SECTION X-X
SCALE 5X



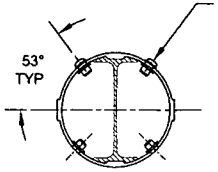
SECTION Y-Y
SCALE 5X

D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

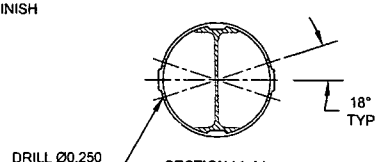


DETAIL E
SCALE NONE

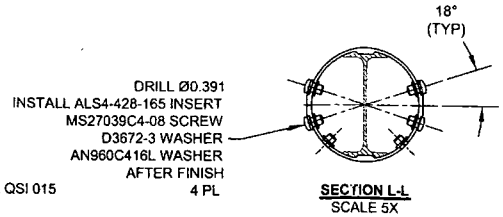


DRILL Ø0.297
INSTALL AELS-1032-130 INSERT
MS27039C1-09 SCREW
D3672-1 WASHER
AN960C10L WASHER
AFTER FINISH
4 PL

SECTION M-M
SCALE 5X



SECTION LL-LL
SCALE 5X



SECTION L-L
SCALE 5X

D3391-013 MID TUBE ASSEMBLY

1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

DEO ATTACHED

RELEASED 08.09.05 NW

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	AJS	PORT HADLOCK, WA
CHECKED		DRAWING NO. D3391 REV. H
MFG. APPR.		SHEET 5 OF 8
APPROVED		TITLE: 412 FLOAT SKIDTUBE
DE APPR.		SCALE: NTS
DATE	08.08.20	

Dart Aerospace Ltd

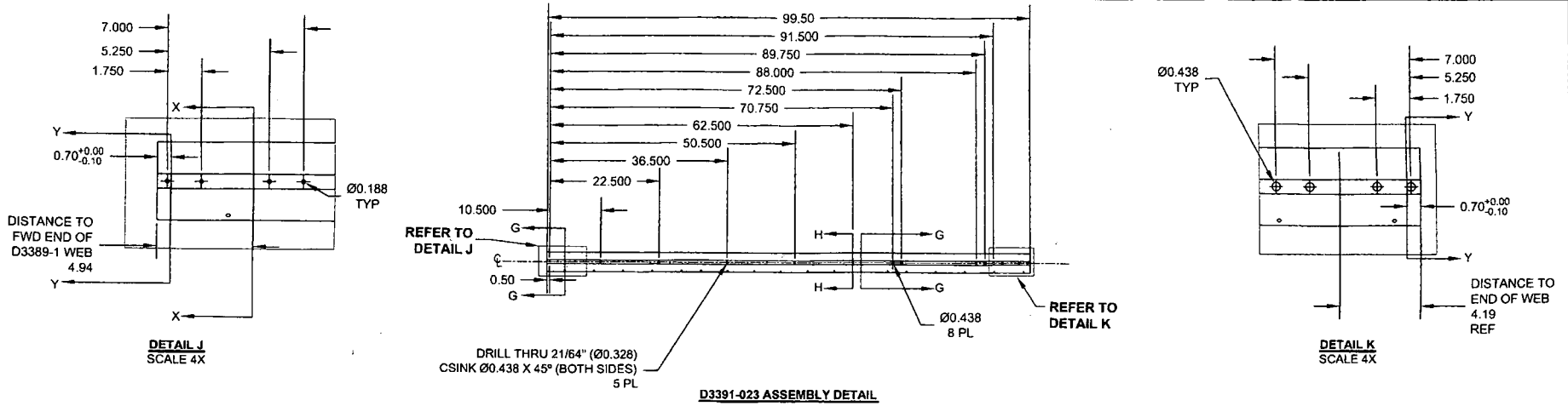
W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

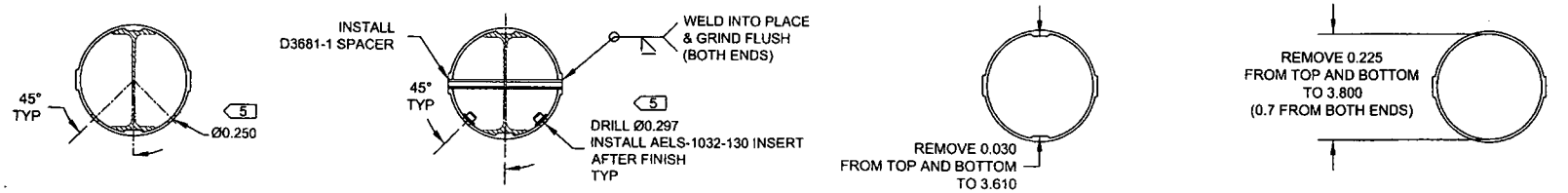
NOTE: Date & initial all entries



DETAIL J
SCALE 4X

D3391-023 ASSEMBLY DETAIL

DETAIL K
SCALE 4X



SECTION G-G
SCALE 5X

SECTION H-H
SCALE 5X
5 PL

SECTION X-X
SCALE 5X

SECTION Y-Y
SCALE 5X

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

D3391-023 MID TUBE ASSEMBLY

1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

DEO ATTACHED

RELEASED
08.09.05 W

DESIGN	PH	**DART AEROSPACE USA, INC** PORT HADLOCK, WA
DRAWN	AJS	
CHECKED		DRAWING NO. D3391 — REV. H — SHEET 6 OF 8
MFG. APPR.		
APPROVED		TITLE: 412 FLOAT SKIDTUBE — SCALE: NTS
DE APPR.		
DATE	08.08.20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

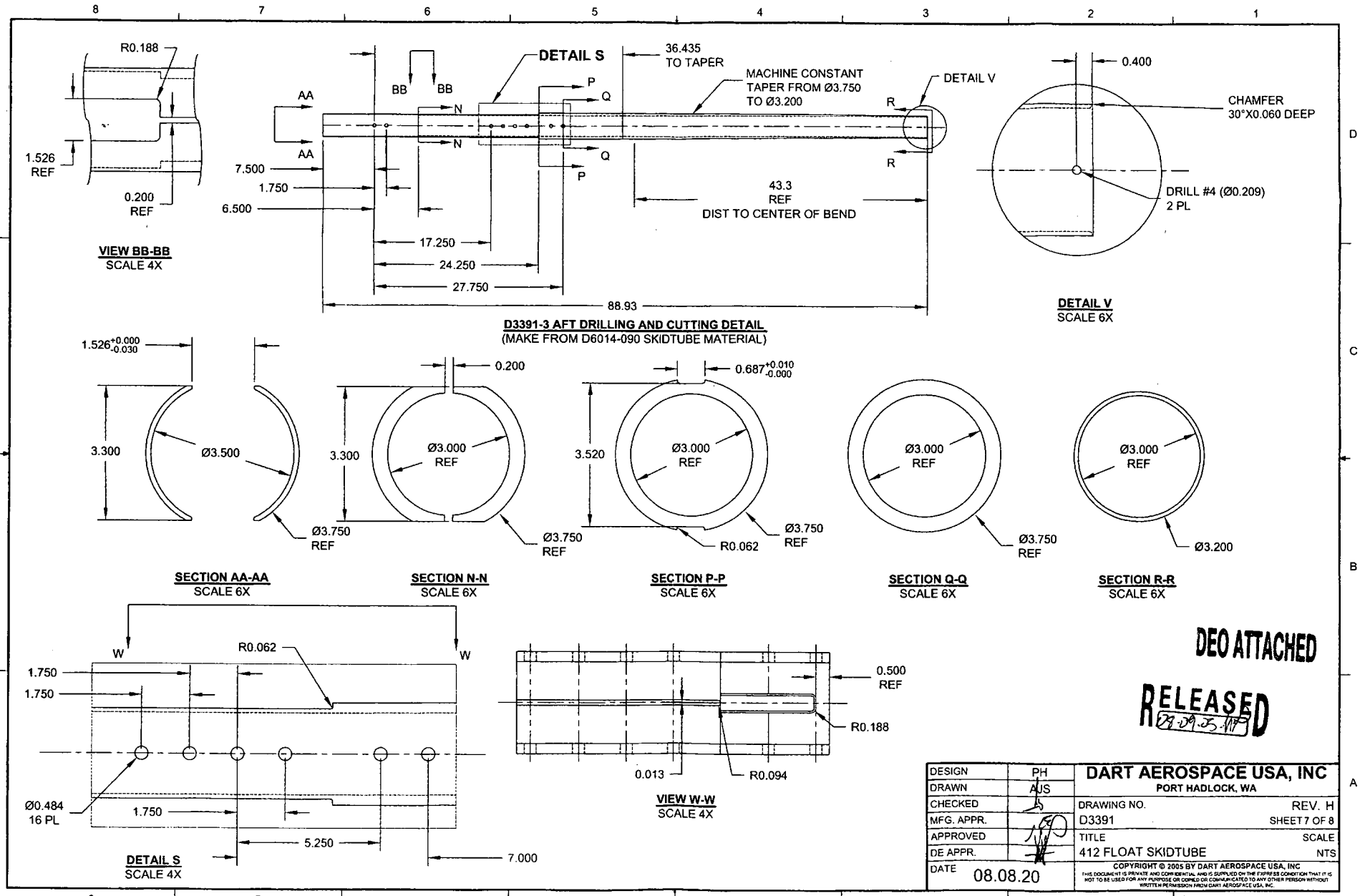
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

w/o 65885



DEO ATTACHED

RELEASED 08-09-20-117

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	AJS	PORT HADLOCK, WA
CHECKED		DRAWING NO. D3391 — REV. H
MFG. APPR.		SHEET 7 OF 8
APPROVED		TITLE: 412 FLOAT SKIDTUBE — SCALE: NTS
DE APPR.		
DATE	08.08.20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

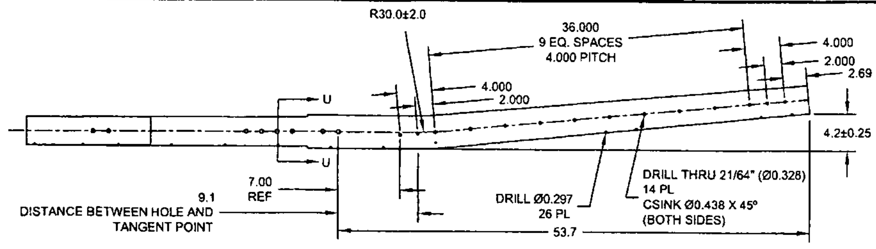
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

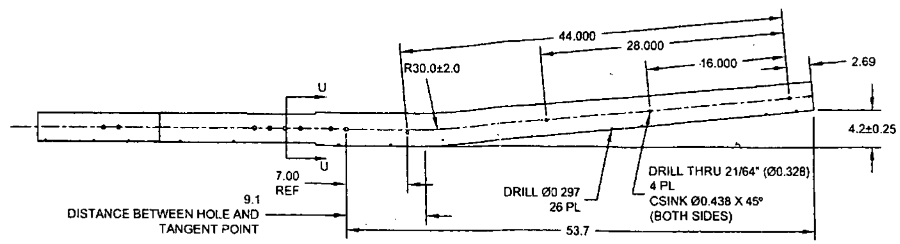
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

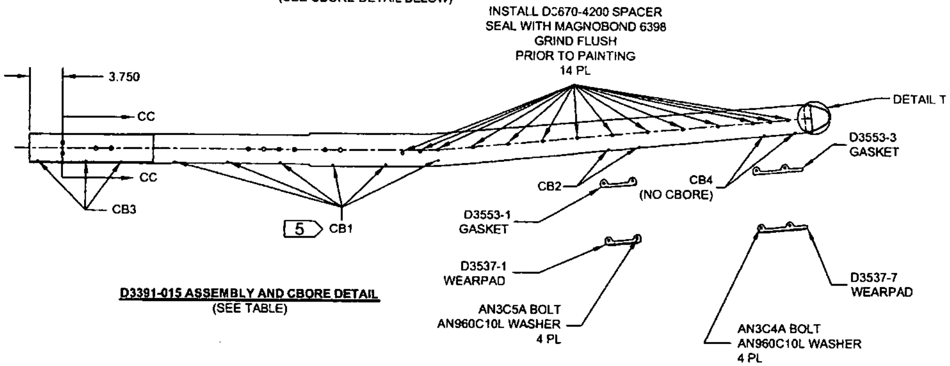
w665885



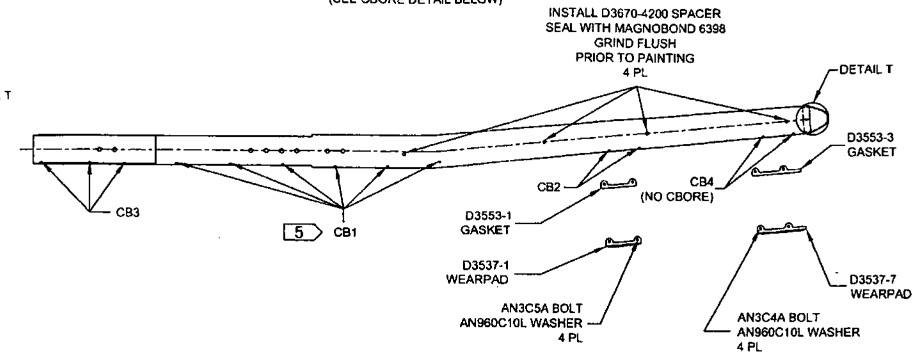
D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



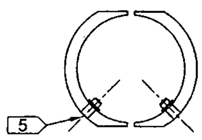
D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)



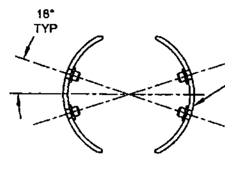
D3391-025 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

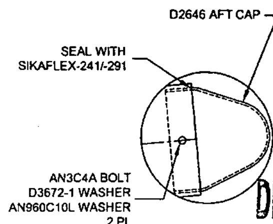
QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4		ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



SECTION U-U
SCALE 3X



SECTION CC-CC
SCALE 3X



DETAIL T
SCALE 4X

DEO ATTACHED

RELEASED 08.09.05

C'BORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

DESIGN	PH	**DART AEROSPACE USA, INC** PORT HADLOCK, WA
DRAWN	AJS	
CHECKED		DRAWING NO. D3391 — REV. H — SHEET 8 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	08.08.20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

DRAWING NO.	TITLE	REV.	DART AEROSPACE USA, INC	D.E.O. NO.	SHEET NO.	SCALE
D3391	412 FLOAT SKIDTUBE	H	ENGINEERING ORDER	D3391-H-1	SHEET 1 OF 1	NTS

DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.
DATE 09.09.23	DATE 04.04.24	DATE 09/09/25	DATE 09/09/30	DATE 09/09/30

PURPOSE:
LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

RELEASED
2010 -02- 02
ULW 68985

CHANGE:
AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.~~ COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

NO. 244

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barklay Elliott
Job number: 65322
Part number: 13391-023
Description: mid tube
Welding Process: Tig[✓] Mig[ ]
Base materiel: Aluminum
Current: AC[ ] DC[ ]

TEST REQUIREMENTS AND RESULTS

Visual:	pass[✓] fail[ ]
Penetration:	pass[✓] fail[ ]

UNACCEPTABLE

Cracks:	pass[✓] fail[ ]
Undercut:	pass[✓] fail[ ]
Pin holes:	pass[✓] fail[ ]
Overlap (cold lap)	pass[✓] fail[ ]
Porosity (surface):	pass[✓] fail[ ]
Coloration:	pass[✓] fail[ ]

Qualifier Pat Timms **Date of Test Coupon** 11-01-18

Welder Barklay Elliott **Date of Test Coupon** 11-01-18

The above named individual is qualified in accordance with AWS D17.1.2001 to weld